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ABSTRACT

Five essays analyze human needs and values in relation to population and economic growth. The first, "The Trouble With Growth," discusses current problems: the benefits of growth are unfairly distributed: growth can damage the environment and waste resources: unproductive and dysfunctional growth is not distinguished from productive and socially useful growth: and economic growth compounds the difficulties of governance. The second essay, "The Trouble With No-Growth," points out the need for an alternative for growth. The author names the alternative human growth, which is, he states, growth as if people mattered. The third essay, "Transition South: Toward Basic Needs," discusses changing attitudes toward growth in developing nations. The fourth essay, "Transition North: Toward Human Choice," focuses on the nature of the new growth ethic as evidenced by a new skepticism of science and technology, a new emphasis on ecological causes and effects, a willingness to think with a global perspective, a surge of continuing education, and a turn from quantitative to qualitative criteria as measures of personal well-being. The final essay, "The Governance of Humangrowth," concerns problems which extend beyond national governments. In facing these global issues, priority must be given to the analysis of tradeoffs among alternative policies and actions, and providing those responsible for action access to the best thinking of those who are not. (Author/KC)

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Humangrowth

An Essay on Growth, Values and the Quality of Life

Harlan Cleveland and
Thomas W. Wilson, Jr.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Great ideas come into the world on doves' feet. If we listen closely, we will distinguish amidst the empires and nations the gentle whisper of life and hope.

—Albert Camus, 1954

Foreword

The New Goals of Growth

J. E. Slater

This paper introduces one of the most crucial questions of our time: How can we review the values underlying growth policy so that the economic growth generated by the Industrial Revolution can be better shaped to benefit mankind?

Today, we face questions of the character and quality of growth—not simply whether there is to be growth. Increasing numbers of people are trying to share a finite-sized pie; unless they can achieve and share growth, they face domestic and international conflict.

The value choices facing the contemporary world cannot be ignored. We have to decide which values should be discarded and which are enduring. We must recognize legitimate counterclaims, particularly for the hard-core poverty areas, as we seek over time a consensus on the character of growth. We have to learn to make trade-offs relating efficiency, constraints and fairness. For example, we must make choices between jobs and environmental considerations. No society can call itself civilized and still permit the pockets of hard-core poverty that exist today in our country and for more than one billion souls elsewhere.

Growth, of course, can be cancerous, spreading without regard to human values and benefits. And, in contrast, the idea of "no growth" is naive. Society must provide jobs; people have to work and eat. A growing world population does not permit the static idea of no-growth.

Certainly, the questions of growth policy are complex and urgent. They demand our attention. There are no panaceas.

Harlan Cleveland and Thomas W. Wilson, Jr., and their colleagues who have contributed to the ideas in this paper have set out on a daring voyage. They seek to chart the passage by which man's drive for quantitative "progress" can be channeled into "growth" that will be socially useful and fairly distributed. They point out the shoals of human choices and the rocks of inadequate governance. And they sight, beyond our present horizon, the unknown shore they call "humangrowth"—growth for the benefit of all mankind.

Their paper is no utopian exercise. It is a pragmatic analysis of this central issue now before us. The reader will gain from it an unexpected vision of the epochal transition that the world is in at the moment. This transition is at the root of national tensions, economic disfunction and spiritual confusion. By understanding both its dangers and its opportunities, we can achieve some chance to mold a global future that holds promise for a better life.

Based on several years of work on growth issues, in July 1977, the Aspen Institute, stimulated further by Russell W. Peterson, brought together 45 people from eight countries and 33 professions at the Aspen Institute in Colorado, to discuss "Growth, Values and the Quality of Life."

The members of this particular group examined and challenged the major premise with which we have all grown up: that "more" is better." They agreed that throughout the world some leaders and ordinary people are talking about jettisoning the ideal of material "growth" by itself as the central organizing principle for modern and modernizing societies. They addressed these questions: What should be the goals for improving the quality of life in the last two decades of this century? What values are implicit in these goals? What can individuals, groups and governments do now to move toward this future?

This report is not a consensus of the rich and varied views expressed at the Aspen Institute seminar, although it is based on the interaction of that exceptionally stimulating group. This report is, rather, an effort by two of the participants to build on that seminar and redefine "growth"—to serve human needs and values.

As stated, the Aspen Institute has been concerned for many years with the various aspects of growth policy. It has discussed growth repeatedly in terms of contemporary society in its Executive Seminar Program. It has debated environmental issues emerging

from the nature of growth. Its Science, Technology and Humanism program has confronted the impact of technology on growth. Its seminar held in Jerusalem on the impact of modernization on traditional cultures and values explored the relationship of Christian, Jewish and Muslim ideas of monotheism to economic growth. And, most importantly, the Institute has evolved a long-term concern with the field of Governance, particularly in the areas of Energy and Financing the Future: How can governments meet the new and difficult problems ahead of us within the framework of freedom and fairness?

During last summer's seminar on Growth, Values and the Quality of Life, I raised certain special issues concerning values and growth. They were issues heightened by the compartmentalized nature of contemporary society and by the desperate need of its various sectors to communicate with each other and work together if many of our problems with the nation's key resources are to be faced frontally. This compartmentalization makes it arduous to reach a consensus by other than authoritarian means and thus endangers our freedom. This compartmentalization creates barriers between business, labor, government and the academic worlds. We need to break down these barriers and determine the interrelationships of values and growth for the different sectors of our society and the world.

I deplored the lack of attention we give the implications for other sectors of society when policies affecting growth are made in one part of our society without proper consultative and decision-making processes. We need to be less mindless and simplistic about such implications, even when they appear complex. We have to be prepared to accept complexity and failure and go on from there.

For example, no one can insist that "small is beautiful" if that choice means that 40 percent of black Americans and 20 percent of our young will be out of work. If a labor-specialized society is to develop with strength and freedom, it must learn how to provide useful, satisfying work for all its members who want and are able to work. Aspen Institute Special Adviser Daniel Yankelovich, who specializes in public opinion analysis, claims that there are more than 24 million Americans who would take jobs if they were available.

I also emphasized some subjects about which people avoid talking. I used the example of "the economics of corruption," which encourages the construction of large, costly projects primarily so individuals can pocket abnormal profits and even bribes. Too often,

decisions are made to build such projects and neglect education and health programs, in which corruption is less profitable. Choices like these determine a society's values and the nature of its growth. Such unpleasant aspects of growth choices need to be put on top of the table.

As I said to the members of the seminar, contemporary society faces a number of serious challenges, such as the meeting of minimum human needs, the rebuilding of cities and the working out of a fair and effective energy policy. To mount a frontal attack, which has any hope of solving these problems and challenges, requires that the various sectors combine their resources and their concerns. There is no shortage of talent but rather of political will and staying power.

This means that we must reduce the increasing bureaucratization of society, which leads to the deadening of creativity. We cannot pay lip-service to humanistic values while we fail to bring people concerned with the arts, humanities, culture and ethics into the planning and operations of government, business and universities. We must think and act with a better combination of both vision and practicality. We must experiment and innovate to achieve excellence, the diffusion of knowledge and the growth of diversity. We must ensure that the nature of work allows the individual to attain greater fulfillment.

Today, there is a special need to re-examine values, growth policy and the quality of life so that they can be developed without the unacceptable costs of bureaucratization; the emergence of a homogeneous, dull and uncreative society, and the loss of individual and social freedoms.

These key objectives are the subject of this report. Its thesis is that the new goals of growth are already visible. This is a concern that the Aspen Institute intends to pursue in the context of all its programs. We need to convert indiscriminate, uncontrolled growth into growth policies that meet human needs and improve the quality of life on this planet for ourselves and the generations to come.

In summary, when determining its growth policies, a society must set standards, retain centers of excellence, be increasingly innovative and insure that its benefits are available to all its population.

Authors' Note

This essay resulted from an Aspen Institute seminar, during the summer of 1977, in which 45 people from eight countries and 33 professions tried to figure out what was wrong with the "growth ethic" and what its successor might be as an organizing principle for the remaining years of this century, and beyond.

The seminar was first proposed by Russell Peterson, then President of New Directions (now Director of the Office of Technology Assessment). Its steering committee included Dr. Peterson, Charles W. Yost, Walter Orr Roberts and the authors of this paper. A full list of participants will be found in the Appendix.

We have not used footnotes, but some useful references and fuller explanations are in the narrative Notes following the text.

H.C. & T.H.W., Jr.

1.
THE TROUBLE WITH GROWTH

The hardest transition to see is the one we are in. The narrow slice of time called the present is our history's outcome and our destiny's beginning. From this single frame of a moving picture, we have to make judgments about our personal lives, about our communities, about "East-West" and "North-South" relations and reconcile them in some kind of world order.

There is a worldwide feeling that the transition we are in may rank in importance with the shift from nomadic to agricultural society and from tribal communities to national societies; or in modern times with the Copernican and Industrial Revolutions. Such a period calls for hard thinking about our direction—what the transition is *to*.

It helps to look back at earlier transitions and to think systematically about alternative futures. But most of all it helps to reexamine the unstated premises of our own time and place—and especially to consider the widening gap between the conventional wisdom and the practical wisdom by which we live and work.

* * *

During most of the lifetime of peole now living, more has been assumed to be better. Quantitative growth of goods and services has been seen, if not as an end in itself, at least as the primary means to the satisfaction of human requirements and the pursuit of human happiness.

In a world where people live and work in such widely different ways, it is not easy to generalize about human requirements. Yet people do seem to have certain felt needs in common, even though these vary greatly with culture, tradition, availability of modern

communication, degree of industrialization and time. These common requirements are:

- Basic human needs ("enough" food, shelter, health education, employment and security of the person).
- A sense of the dignity of being human.
- A sense of becoming (a chance to achieve a better life).
- A sense of justice or equity.
- A sense of achievement, related to something worth achieving.
- A sense of solidarity, of belonging to a worthy group and of participation in decisions that affect the group's, and one's own, destiny.

The idea of "growth," as defined by increases in the Gross National Product, does not adequately address these fundamental requirements. "More" is now questioned because, like the GNP calculation used as its measure, it is undiscriminating: It neglects people and their purposes.

The troubles with indiscriminate economic growth as a social and political centerpiece are multiple:

The benefits of growth are unfairly distributed.

The GNP measurement focuses on what is produced and tends to obscure questions about who is receiving the fruits of production. But in recent years, especially in developing countries, an unexpected phenomenon appeared. The overall economy measured by GNP recorded substantial, sustained growth, while the numbers of people mired in poverty increased. The contrast was too visible to ignore. It is no longer possible for development planners to overlook the distribution of the wealth they are trying to create.

Beginning in 1974, a number of nongovernmental organizations and several international agencies began to question sharply the whole idea of basing development strategy on the achievement of gross increases in production. With growing asperity, they ask hard questions about the distribution of benefits and call for meeting "basic human needs."

"Growth" can damage the environment and waste resources.

The pollution of the natural environment, the congestion and ugliness of urban conglomeration, and newly perceived threats to the

resource base of the planet—all seen as the consequence of an uncritical enthusiasm for economic growth—have produced, especially in the industrial democracies, a popular reaction against growth as a preeminent goal. Growth is increasingly criticized as an unwarranted and indiscriminate attack on Nature, and thus on the future of Man, who must ultimately reconcile his mighty works with Nature's mightier imperatives.

Unproductive and dysfunctional growth is not distinguished from productive and socially useful growth.

The global cost of military insecurity in 1976 was the $350,000,000,000 spent to arm and maintain defense forces around the world. None of this spending is "productive" in the economic sense. Certainly, the high proportion of it that represents overkill capacity or prestige forces subtracts from what might be spent to meet human needs; and governments, indeed, use some of it for internal repression. Yet econometricians cheerfully include all of it in the primary index by which governments, business organizations and the media judge the health of national economies. Traffic jams, drug abuse and pork-barrel public works projects also count as additions to the Gross National Product.

The value of a housewife's work is not regarded as part of the "national product." Nor is what may be produced in out-of-work hours, even though much housing maintenance and improvement is done at such times. And environmental degradation is not subtracted from the "national product." Yet if the people's health is improved by reducing air and water pollution, the resulting reduction in medical billings shows up as a reduction in GNP. The extent to which better health makes people more comfortable, happier and more productive is not measured at all.

Economic growth compounds the difficulties of governance.

For the industrial democracies, being "developed" has come to mean a chronic crisis of governance. Their leaders are baffled by the urban dirt, danger and disaffection; their young people are educated for non-existent jobs; their middle classes are squeezed by inflation and harassed by bureaucracy; their farms and factories depend on an enormous migratory proletariat; their economies rely critically upon Middle East oil for their swollen energy needs; their governments revolve in endless and ineffective coalitions. The Marxist industrial societies also face a chronic crisis of governance. They seem unable to

plan for the succession of power; they depend on military force for internal stability and international clout; they cannot maintain momentum for their kind of revolution in the developing world, and are unable, in the U.S.S.R.'s case, even to feed their own people without depending on American farmers. It is not only the "poor" countries that are managing poorly in our interdependent world.

2.
THE TROUBLE WITH NO-GROWTH

The growing disillusionment with "growth" as the prime justification for private actions and public policy led to a quick flurry of interest in "no-growth."

A sobering bestseller, *The Limits to Growth,* sensitized readers to the possibility that man and his environment are on a collision course. By projecting growth curves that measure economic activities, the authors concluded that by early in the next century the world could "overshoot" available resources and transgress the carrying capacity of the biosphere to sustain man-made burdens. The social system could thereupon "collapse."

The Limits to Growth did not predict that this would happen. It rather carefully said that if we did not alter existing trends, these would be the unavoidable results. The distinction between warning and prophecy was largely lost as, in the debate that followed, good theater drove out good analysis.

The instinctive pessimists and the visceral optimists squared off. So much was obviously bad about both "growth" and "no-growth" that a credible diatribe against either could be derived from the same data base.

The furor also brought out the analytical artillery of specialists who saw the concept of "limits" as helpful or hurtful to what they were advocating anyway. Environmentalists welcomed support for their warnings about resource depletion and environmental degradation. Development economists and business thinkers attacked the vulnerable methods of handling data in the *Limits* analysis. Planners and leaders in developing nations were outraged by the notion that the world would run out of resources before they managed to get their share. Besides, many social needs, even in the very rich societies, could only be met either by further growth or by taxing, expropri-

ating and redistributing existing wealth—an uncomfortable prospect for those who already "had it made."

Even the leaders of the Club of Rome, pleased by all the attention but embarrassed to find themselves tagged as the world's leading prophets of gloom and doom, soon commissioned a rival model of world resources and a study of how to help the world's poor through changes in the international economic order.

* * *

Meanwhile, several funny things were happening to the extrapolations on the way to catastrophe. For one, the concept of resource limits—a fixed barrier toward which we were running pell-mell, and into which we would slam hard if we didn't slow down now and eventually stop altogether—turned out to be exceedingly slippery. The "limits" depend on how we define the resource: How much copper we have in the ground depends on how rich the ore has to be before we call it copper. Much of the earth's land surface and nearly all the ocean bottom has yet to be seriously explored. One resource can be substituted for another in our very flexible economy. There are certainly resources lying around that we have not figured out how to use and therefore do not yet figure in our inventories. Technological change can alter, sometimes abruptly, the availability of resources. Technology, availability, fashion and taste are all sensitive to price, and vice versa.

Moreover, some of those exponential curves began to look like the middle age of S-curves. In the early 1970s some professional estimators were saying the world's population (then nearing the four billion mark which it achieved in the mid-1970s) would stand at 7.5 to 8 billion by the Year 2000. But by 1975 the United Nations was projecting a curve that would bring world population to hardly more than 6 billion at the century's end. Two billion more mouths to feed—and a billion more jobs to find—with only 22 years to go, is still a staggering task and a gigantic human tragedy if we fail. But extrapolation of past performance can lead to gross overestimates of the task's magnitude, to such popular nonsense as "triage" and to a sense of hopelessness.

Other changes in outlook were even more dramatic and much more sudden. At the time of the World Food Conference in the autumn of 1974, death rates were rising in a number of poor countries and growing famine was widely feared. By the autumn of 1977, the

world's rice crop (especially important in feeding the world's poor) was close to a record high, and bumper wheat and corn harvests had knocked down the price to American farmers. As a result, in the United States, the Carter Administration moved to return to a state of idleness some of the land that had been released by the Ford Administration for planting to help meet anticipated world grain shortages.

A clear and present glut of petroleum products in the marketplace now seems to confound earlier fears of imminent shortages, and makes it extremely difficult for the U.S. Government to act now to forestall shortages a decade or two down the road. In energy as in food, the longer term policy questions are still there: Can population growth be restrained, agricultural productivity boosted, enough fresh water assured, energy waste reduced and alternatives to oil developed, in time to head off future shortages and the conflicts those shortages would surely bring? Perhaps even more importantly, can distribution of income be made more equitable so that deprivation does not coexist with plenty?

Meanwhile, a basic assumption of the catastrophists—that future growth would continue in the same patterns as in the past—was being undermined by the way "post-industrial" economics was working out. The growing edge of the U.S. economy—the same is true, if less so, in Europe and Japan—is the field of services rather than the materials-intensive and energy-intensive production of things. Despite our well-advertised wastage of energy in the United States, the energy used per dollar of GNP keeps going down.

What futurist John McHale calls the electromagnetic spectrum industries—electronics, computers, telecommunications—take less and less metal to build and energy to run. Compared to a decade ago, computers are 10 times smaller, 100 times faster and 1,000 times more cost-effective. The large-capacity Cray computer just installed in the National Center for Atmospheric Research is built to handle 80,000,000 calculations per second and remember 10 trillion of them. Its central brain takes up less space than a small hotel room and was designed and assembled not by a giant corporation but by a small businessman in Chippewa Falls, Wisconsin.

The growing opportunities for reuse of waste and recycling of materials, and the more efficient regenerative practices inherent in the emerging bioconversion and biotechnical industries, all argue for caution in predicting that we are on the verge of running out of

mineral resources—an assumption central to the argument for "no-growth." And the growing "post-industrial" realization that information can be treated as a prime resource makes foolish the notion that any resource used by one nation, or person, is *pro tanto* not available to others.

* * *

Yet the biosphere is still finite; "biological sustainability" is still a problem.

The global fish catch peaked in 1970, and the per capita catch is down 14 percent since then. The burning of firewood still outstrips the growing of trees. Grasslands are regularly overgrazed in many areas on every continent. The loss of topsoil nearly everywhere exceeds the rate at which new topsoil is formed. As proprietors of the biosphere, we are "consuming our capital," not "living on income."

Pollution of the seas grows worse from year to year. Pollution of the atmosphere continues—with still unknown implications for human health. World population continues to grow, even if not quite so rapidly as the experts told us it would.

All these trends are both cause and effect of the central perplexity: that the institutions through which societies try to solve their problems, sort out their priorities and resolve their dilemmas are nearly paralyzed by the complexity of it all.

To say that our real problems derive not so much from material shortages as from the capacity of our social and political institutions is to say that the "limits" are in our hands, that they are not a jail cell for which Nature has thrown away the key. This helps to focus our attention on the right issue. The right issue is found by turning the best-selling title around: The Growth of Limits.

The growth problem is not that we are running out of resources but that we are running into competitive claims on resources (for example on water for irrigation, industry, households, recreation and the like) which cannot all be met fully at the same time. The problem is not that the biosphere is about to become unlivable, but that damage control must be installed in the interests of our own health and our children's heritage. It is not an alternative *to* growth we need, but new alternatives *for* growth we must identify, analyze and select.

The party, the binge, the bust is over. We are going to have to manage our way out of the mess we will otherwise be in—by making choices and selecting purposes.

Perhaps more notice should have been taken of the paragraph in *The Limits to Growth* that begins with these words: "The final, most elusive, and most important information we need deals with human values . . ."

The key question in the past has been quantitative: How fast can we grow? The new questions ask about purposes: Growth for whom? Growth for what?

* * *

If more of the same no longer seemed automatically better, less of the same was even less attractive. This was brought home by the global recession of the mid-1970s. Nobody liked it, not the developing countries which saw their export markets dry up and their raw material prices swing low, not the industrial countries which saw inflation and unemployment fused together at the same end of a new kind of business cycle. Especially in the big interdependent economies of the industrial democracies, it became all too clear that lowered rates of general activity made every decision more difficult, and in some nations seemed to make effective governance impossible. And in world terms, the economic stagnation clearly made it harder to work toward greater fairness and equity in a new international economic order.

If "growth," as a modern society's organizing principle, is indiscriminate, and "no-growth" is neither necessary nor acceptable, then the alternative is selective growth, purposeful growth, growth "as if people mattered." For convenience in discussing this thought in greater depth, we will baptize this emerging ethic with a made-up name: humangrowth. And the starting point for an analysis of humangrowth has to be not what is produced but what is required, and especially the needs of the neediest.

3.
TRANSITION SOUTH: TOWARD BASIC NEEDS

In recent years, the call for meeting "basic human needs," especially in the world's less-developed "South," has become a code word for economic justice—for fairness—for equity in the distribution of the benefits of growth, not just among nations but among people within nations. This is a way of saying that something must be done about the scandal that too much of the economic growth produced by "development" has been siphoned up to the rich rather than trickling down to the poor.

"Basic human needs" are usually defined as "enough" food, shelter, clothing, health, education, employment and security of the person, for everyone everywhere. Three related ideas are spreading fast:

- that people are entitled to a minimum level of life and literacy by virtue of being people,
- that this "poverty line" is properly a matter for international as well as "domestic" politics, and
- that the meeting of basic needs should be regarded as a first charge on world resources.

The dimensions of world poverty, familiar as they are, cannot be understood if they are measured only in money terms—which would inform us that the standards of living in Abu Dhabi and Qatar are higher than in Sweden and Switzerland. Moreover, per capita averages for income or GNP miss the crucial fact that the poorest people are almost by definition least plugged into the money system and most dependent on barter, in-kind compensation, and their own skills to grow their own food, build their own shelter, make their own clothing, fashion their own tools, fix their own machinery, maintain their own health, educate their own children and protect their own

persons. This could mean that very low "income" figures might exaggerate the desperation of their circumstances. But if other indicators are examined as well, it quickly becomes clear that poverty is the prevailing condition for one-eighth to three-eighths of the human race:

The World's Poor, 1976

In Total World Population of 4 Billion

Undernourished (i.e., below suggested calorie/protein levels)	570 million
Illiterate Adults	800 million
Children Not Enrolled in School	250 million
No Access to Effective Medical Care	1,500 million
Less than $90.00 Income per Year	1,300 million
Life Expectancy Below 60 Years	1,700 million
Inadequate Housing	1,030 million

Source: John & Magda McHale, *Basic Human Needs: A Framework for Action.* A report prepared for the U.N. Environment Programme. (New Brunswick, N.J.: Transaction Books, 1978.)

During the decades of the '50s and '60s, the world's developing countries as a group—Africa, Latin America and non-Soviet Asia—achieved an average growth of five percent per year in their GNP. That is an impressive rate of "progress"; the United States has not managed so high a growth rate for several years now. Yet in the '70s, compared to the '40s, more people than ever seem to be "poor"—whether poverty is measured by malnutrition, mortality, illiteracy, the lack of remunerative work and disposable income or the absence of critical social services. The per capita gain in national income was reduced to two and one-half percent by "modern death rates combined with medieval birth rates." And most of the benefits seem to have gone to the upper and middle income classes inside the poorest countries.

World Bank President Robert McNamara said it to his Board of Governors in 1976, and repeated it in 1977: ". . . growth is absolutely essential to development. But growth, no matter what its magnitude, cannot assist the hundreds of millions of absolute poor unless it reaches them. It is not reaching them adequately today."

* * *

The development model that produced this scandal came out of the West. For several decades it was taken for granted that the modernization of pre-industrial societies would follow the general pattern established by the peoples that pioneered the Industrial Revolution in Europe and, stimulated by Europeans, carried it further in North America, Japan and the Soviet Union. The essence of the Western model—developed through three centuries of scientific discovery, technological invention, industrial innovation, business entrepreneurship, free-enterprise economics and learnings about the management of large complex systems—was that the key to military strength, national prestige, stable money and rising standards of life was to put more and more energy and machinery at the disposal of each worker and each consumer.

The comparatively egalitarian consequences of this policy, over the long run, blurred the memory (in the West) of the suffering and unfairness at the earlier "stages of growth." The historical record is clear enough: In the early periods of industrial growth, the few got richer and the bulk of the population got relatively poorer.

Mass production, mass marketing, mass organization of labor and mass politics eventually began to spread the benefits of industrial progress through better wages, lower prices and more public responsibility for individual equity and the general welfare—still with major exceptions for those bypassed or excluded from the benefits of prosperity.

It nevertheless came to be widely believed that there was something inevitable about the widening of the gap between rich and poor in the early stages of development. If the rich did not get richer fast, it was said, a "capital shortage" would slow down the putting of more and more energy/equipment behind each worker.

At a meeting in Persepolis, in 1975, a young American-trained Iranian economist was asked by foreign visitors how Iran intended to build equity into its plans for rapid industrialization. "We have all studied the same economic history at the same graduate schools," he replied, "so we all know the rich-poor gap has to get worse before it gets better. Ours is still getting worse, so we figure we're right on the curve."

* * *

As a global fairness revolution gained momentum in the 1970s, the prevailing economic theories of modernization were increasingly called into question. For one thing, they did not seem to be working very well in the industrial nations, which had served as the models and from whose earlier experience the theories were derived. Contrary to the teachings of Lord Keynes, the coexistence of inflation and sluggish growth rates came to be the norm; the forecasts based on earlier business-cycle models were often awry.

The societies with the most advanced technologies seemed awash in social problems, including persistent unemployment and youthful crime, addiction and alienation. Mass production and mass consumption were conspicuously failing to induce mass happiness or even mass welfare. The very premises of modernization were under attack from inside the citadels of modernity. The detrimental side effects of indiscriminate growth became too evident to ignore.

Outside the industrial world, among leaders and thinkers of the developing "Third World," the older models also seemed tarnished by their impact on local economies and cultures. Industrial production and urban in-migration seemed to bring with them skewed patterns of consumption, new modes of living, and personal and social mores that were often seen as threats to traditional values and established institutions. If the net results of transferring the "industrial model" to developing countries were to be larger inequalities between rich and poor and between city and country, and a loss of cultural distinctiveness, then perhaps there were better ways to pursue "development."

In a complex world of a hundred different "development models," it is perilous to generalize. Even the easy historical judgment that the "Western model" has been bad for the environment should have in memory that Buddhist cremation practices, the demand for charcoal for brush inks, and the building of wooden temples have in pre-industrial centuries been blamed for deforestation in East Asia. The Fertile Crescent and the North African littoral were not turned into deserts by Western-style industrial growth.

Reservations about the "Western model" can similarly be balanced, out there in the real world, by the record of societies that have embraced industrialization and "taken off" more or less the way the theorists said they would: Taiwan, South Korea, Hong Kong, Singapore, Israel and the modern sectors of Brazil and Mexico are obvious examples, each with its own unique history and resources

and circumstances, and attitudes toward education and governance, to help explain what happened. Any necessary correlation between slow growth and failure to meet human needs is contradicted by the record of Sri Lanka, which scores high on indices of social welfare and longevity even though it ranks among the "poorest of the poor" in per capita GNP. And most generalizations about development need to account for the large if ambiguous exception of China. It has combined pockets of high technology and a broken-down educational system with a spectacularly effective mobilization of the world's largest national population to produce and distribute the physical necessities of life.

And yet there *is* something new under the Southern sun. It is a growing awareness that the end-purpose of development is, after all, to meet human needs—in other words, that the question to ask about development is "Growth for whom?"

* * *

One of the early Declarations about a New International Economic Order issued from a meeting of governmental and non-governmental leaders and experts held at Cocoyoc in Mexico in October, 1974. The essence of their reappraisal was captured in this critical paragraph of the Cocoyoc Declaration:

> Our first concern is to redefine the whole purpose of development. This should not be to develop things but to develop man. Human beings have basic needs: food, shelter, clothing, health, education. Any process of growth that does not lead to their fulfillment—or even worse disrupts them—is a travesty of the idea of development.

Most of the early rhetoric in the "North-South dialogue" about a new international economic order dealt with fairness *among* nations. But unfairness *within* nations—expressed in the widespread endorsement of "basic needs strategies"— has now quite suddenly become central to plans for international economic cooperation and development assistance.

Some established elites see the new code word "basic needs" as a threat to existing patterns of wealth and power. "Basic needs" have nevertheless crowded their way into the vocabulary of development planners and policymakers. The World Bank Group has overcome an earlier reluctance to support rural reforms, health, education and

family planning. The U.N. Environment Programme, declaring poverty to be the ultimate pollution, now sees a basic-needs strategy as part of the answer to environmental degradation. The International Labour Organization has called on governments and international organizations to place basic needs at the center of world development. The World Health Organization has done an aboutface to focus on health services for the very poor. The Food and Agriculture Organization is reorganizing to reflect the new priorities. The U.N. Children's Fund (UNICEF) is expanding its concept of "basic services for those least served." The U. S. Congress has revised the mission of the Agency for International Development (AID) to place its main emphasis on projects for attacking the worst poverty. President Carter has promised the United Nations that ". . . the U. S. will be advancing proposals aimed at meeting . . . basic human needs . . ." Even those practitioners of development aid who are not doing anything new feel the need to claim that what they already were doing was part of an unarticulated "basic needs" strategy.

In short, "basic human needs" have been promoted from an aspiration to an entitlement for those societies where basic needs are not already guaranteed by welfare systems, unemployment insurance and "poverty lines." How far this theme has penetrated the thinking of both industrial and pre-industrial worlds was shown by another, more recent Declaration about the New International Economic Order, this one from an International Conference on Human Needs in one of the world's most affluent cities. The "Houston Declaration" of June 1977, citing the fact that economic growth had "tended to help the relatively affluent while leaving the poor where they are," prescribed a basic-needs strategy as the remedy:

. . . (3) The first thing to do about reshaping the international economic system is to get our priorities straight. The satisfaction of basic human needs—the food, health, shelter, clothing, education and employment which are prerequisite to human dignity—should be treated by each nation, and by the international community, as a first charge on the world's resources.

(4) The satisfaction of human needs is indeed the whole purpose of growth, trade and investment, development assistance, the world food system, population policy, energy planning, commodity stabilization, ocean management, environment protection, monetary reform, and of arms control.

(5) Meeting human needs thus emerges as a new, compelling

> focal point for a new international economic order. Reshaping the international economic system, to achieve more fairness and wider participation, can both facilitate the meeting of basic needs inside nations, and attract greater resources to the task. Wide acceptance of responsibility for meeting "human needs" will enable industrial and developing nations to get beyond "dialogue" to a practical start on a new international economic order.

The art and science of "development" is a story of the search for magic "keys" to growth that would shortcut the modernization process and close the gap between the developing and industrial worlds. Each expert enthusiasm left its mark by accretion on the doctrine of development assistance—relief and rehabilitation, recovery by outside investment, technical assistance, central economic planning, training institutes, "institution-building," public administration, social development, community development, rural clinics, barefoot doctors, family planning and "appropriate technology." It would be a sad turn of events if the current re-awakening to the end-purposes of development were to become another fashionable fad in the shaping and operation of development assistance programs.

A basic-needs strategy may not call for focusing *external* aid on those sectors of a developing economy that most directly touch the "poorest of the poor." The main factors in a basic-needs strategy will always be internal policies, programs and projects for social change—including land reform, tax policy and educational entitlements. If a nation's development is set on a course that gives priority to basic human needs, the input from outside aid can go in almost anywhere that fits that emerging strategy.

* * *

A World Bank staff paper summed up things this way:

> . . . economic growth appears to have done very little for the poorer of the Third World's rapidly growing populations . . . the economic emphasis has tended to lose sight of the ultimate purpose of the policies . . . The demand now is to put man and his needs at the center of development.

This is the general shape of the transition in growth policy now under way in the developing world: People and their most pressing needs are being moved—not without resistance—toward the center of the picture.

4.

TRANSITION NORTH: TOWARD HUMAN CHOICE

Human needs can be divided into two levels, a "first floor" and a "second floor." The first floor is basic: the food, health and education to which each person should be entitled by virtue of being born into the world we call civilized. The second floor would be such other needs as are defined (and redefined over time) by each nation for its own people, within the context of the interdependence of nations. Once basic needs are met—as they essentially are in all industrial societies through a variety of social welfare measures—the question is not only "Growth for whom?" but "Growth for what?"

In every industrial nation a large number of people, beginning with young people, have started to do some rethinking of growth patterns. In the United States, for example, the size of families has declined to about the population replacement level; the historic trek from urban to rural habitats has slowed down, leveled off and gone into reverse; the ecological ethic, in its many manifestations, has started to make its influence felt in the marketplace and in politics; a revolution has begun in the roles and status of ethnic minorities and of the female half of the population, and local communities insist on gaining more control over their own growth.

Supporters of these convergent movements follow positive goals, but what absorbs most of their energy is stopping "bad things" from happening—blocking practices, proposals and projects that damage the biosphere, waste resources and diminish the quality of the natural and man-made environments. More energy has been invested so far in fending off assualts upon Nature than in designing more purposeful directions for growth and more prudent patterns of consumption.

But underlying these social phenomena has been a rising awareness that problems created by previous growth patterns cannot

be solved by more growth of the same kind; that indiscriminate growth bypasses significant numbers of disadvantaged people, and that growth by itself does not meet the full aspirations even of those who benefit most from it.

The felt need now, in the industrial democracies especially, is for a new organizing principle to guide economic activity, social policy and political leadership for the next generation or more. Indiscriminate growth no longer has vigorous, self-confident defenders in the industrial world. But old ideas do not fade away; they are elbowed aside by better ideas. What is the new idea whose time has come?

* * *

The nature of the new growth ethic that focuses on human development can only be described from scattered evidence spotted during our present transition. But that evidence strongly suggests:

- a new skepticism of science and technology,
- a new emphasis on ecological causes and effects,
- a new concept of information as a basic resource,
- a new willingness to think in global perspective and longer time-frames,
- a new surge in lifelong "continuing education,"
- a new insistence that jobs be available and that work be interesting,
- a new turn from quantitative to qualitative criteria as measures of personal wellbeing, and
- new styles in governance for societies with less power at the "top" and more kinds of people involved in planning and doing.

Each of these trends rates a book-length essay in itself, but will get only a few sentences of elaboration here, before we ask whether in the aggregate they constitute a viable alternative to "no-growth" and a worthy successor to "growth."

Skepticism of Science

Science is now widely regarded as too important to be left to the scientists; the technologies produced from their insights are morally ambiguous and may create new perils in themselves. The tale of the Manhattan Project is still a warning in living memory: The secret scientific laboratory that produced the Hiroshima and Nagasaki bombs did not have on its staff a single person whose assignment was to think about the implications of the project if it succeeded. Systematic thinking about nuclear arms control began only after the

hardware was manufactured—and we have been playing catch-up ever since.

The ethic of indiscriminate growth was associated with an illusion that science would always think up something to offset whatever damage was done by reckless growth. Then when it appeared that a technological "fix" was often not available and that the social fallout of science was sometimes severe, critics arose to damn technology as the main reason for the human predicament.

What seems to be emerging now is a more balanced reaction: It assumes an indispensable role for science and technology in purposeful growth, but does not look to scientists and technologists to decide for themselves what the social purposes of their discoveries and applications should be. Until recently the popular assumption was that if we could invent something we had better manufacture it. The agreement with the Soviets not to build anti-ballistic missile systems, the decision (despite the Concorde) not to build an American supersonic transport and the hold-up on development of the B-1 bomber are straws in a new wind. And something analogous is happening in basic scientific research, as the cautious approach to recombinant DNA and weather modification bear witness.

It is now taken for granted that institutions should be built to contain, channel and control new technologies while they are being developed—that the social constraints should mature in parallel with the hardware, not be spliced in later on. The emerging ethic seems to recognize the limited utility of the scientific method in the resolution of inherently social problems, understand the need to take into account the ecological side effects and implications for future generations of new technologies, and assign a high priority to the complex task of interweaving scientific knowledge and technical know-how with procedure, policy and politics.

Ethic of Ecology

The modern environmental movement earned its first spurs by colliding head on with economic growth. But that was before growth meant more than production—and before "environment" meant more than protection of natural systems.

The conservation ethic has been part of the American value system since the earliest days of the Nation—even when the physical evidence seemed to promise inexhaustible natural bounty. Early versions of the conserver-society idea are found in the writings of

Emerson and Thoreau in the work of the Hudson Valley painters and in the agitprop of Gifford Pinchot. From time to time the idea burst through into political life—as when, before the turn of the century, Congress established at Yosemite the world's first national park, or when President Theodore Roosevelt, on his last night in office, pre-empted for national conservation half of what is now the national park system.

Even when the growth ethic seemed to dominate decisions by business and government, the conservationist view was never totally submerged. John Muir, Fairfield Osborn, Aldo Leopold and others kept the torch flickering until Rachel Carson's *Silent Spring* won the movement a popular constituency. Much of the farm legislation of the 1930s was based on conservationist principles; one of the earliest New Deal agencies was the Soil Conservation Service. And by 1970 the National Environmental Policy Act gave the conservation ethic equal-opportunity status with the growth ethic as the central source of guidelines for national decision-making.

Three unexpected changes in public perception—three elements of the transition we are in—may now bring "growth" and "environment" into line after all. One is the mutation of the growth ethic itself—partly, to be sure, under pressure from organized environmentalists brandishing the NEPA and insisting on impact statements. Purposeful growth, serving human needs and promoting human values, has to embrace environmental prudence as one of those values.

Another mutation is occurring in the very idea of stewardship: It started with the aim of protecting nature from people, and has now been broadened to encompass the protection of people from themselves. At the United Nations Conference at Stockholm in 1972, the problem for world concern was defined as "the human environment"—that is, the natural environment or biosphere, *plus* the man-made environment or technosphere.

A third change, slower in coming, is the shift within the environmental movement from the no-saying ethic of protecting nature toward a doctrine of *enhancing* the whole human environment by prudent affirmative action.

The emerging ethic of ecology can thus be seen as an interlocked system of socially-determined limits—not "limits to growth" but limits to environmental damage, pressure on resources, thoughtless behavior, social injustice and destructive conflict.

Information as a Resource

Information, which is organized knowledge, is increasingly recognized as a basic resource in post-industrial societies. Americans have only recently become accustomed to the idea that more of us are engaged in service than in production (by the mid-1970s only 14 million out of 87 million workers were "producing goods" in the traditional sense of those words). Now we have become suddenly aware that more than half of the U. S. labor force is engaged in generating, processing, analysing, maintaining, communicating and distributing information. The trend is faithful to Daniel Bell's earlier description:

> . . . A preindustrial society is essentially one based upon raw materials, as a game against nature, and in which there are diminishing returns. An industrial society is organized primarily around energy and the use of energy for the productivity of goods. A postindustrial society is organized around information . . . as a way of guiding the society.

Thinking of information as a basic resource blows away many of the earlier assumptions about the very nature of economic growth:

- It places the determination of the purposes of growth squarely in the hands of leaders and citizens—not in "invisible hands" or "the market" or "the proletariat" or any other formulation that avoids the individual's moral responsibility for social effects.

- The argument about resource exhaustion is stood on its head. "All other resources are ultimately dependent upon information and knowledge for their recognition, evaluation and utilization . . . Information as a resource is not reduced or lessened by wider use, or sharing, like other material resources—rather it gains in the process of utilization and exchange."

- As already noted, the information industries lean less heavily on scarce material resources than do the "producers of goods." But they depend more heavily on educated people—many of them educated in new ways for functions never before performed.

- Since information is limited only by our imagination and our capacity to manage complexity, social processes based on information resources do not have to assume (as, by and large, our legal, administrative and judicial systems do assume) that if there are winners there must be losers. Adding information to other re-

sources makes "positive-sum" games possible, inside nations and among nations.

- The rapid development of information industries should ease the transition to less-developed countries of a growing proportion of manufacturing processes, and enable the developed nations to concentrate more intensively on the knowledge sectors of human activity. Such a strategy implies a massive—and continuous—process of retraining people, in both the less and the more developed nations.

- More and more of the key information systems depend on technologies that are inherently global: satellite communications, the World Weather Watch, resource sensing from space vehicles, global monitoring of pollution, air transportation and international trade in computer software are only a few of many examples. The new technological interdependencies create systems that serve more people better at the same time that they present more inviting targets for disruption and terrorism.

Perspectives and Time-Frames

It was only a few years ago that a television camera aboard Apollo VIII provided visual confirmation for hundreds of millions of people of what previously could be grasped only intellectually: Planet Earth is indeed small, lonely, unitary, finite and vulnerable. That view of Earth from outer space is now part of human experience; in some measure it helped stimulate the now-rising awareness of the need to cultivate—beginning with elementary school—a global perspective on human affairs. The lengthening agenda of planetary problems will fit into no other perspective.

Nor will they fit into short time frames. This, too, is coming to be better understood. There is a well-advertised reluctance on the part of elected officials to take unpopular positions today in the interests of future benefits. Yet the Joint Economic Committee recently completed a two-year study of long-term economic growth prospects. After commissioning 41 research papers, examining more than a hundred other studies, and holding extended hearings, the final staff study stresses the imperative need for decisionmaking on the basis of long-term goals.

Computers and new information technologies provide the tools for long-term analysis in global perspective—if human beings have the wisdom to use them in the right way for the right pruposes.

Lifelong Education

If in post-industrial society there is likely to be a growing demand for people who can "get it all together," the most functional forms of education may turn out to be, not the vertical patterns of specialization but the creation, over a lifetime, of greater sensitivity to the interconnectedness of things.

The main burden of training a generation of situation-as-a-whole people will have to be carried by the formal educational system. Yet higher education in industrial nations has been slow to adapt to this new requirement. As a consequence hundreds of "think tanks" have sprung up, many of them outside the formal structure of colleges, universities and national academies, to serve the expanding need for research about the future and for synoptic policy analysis.

"Continuing education" is rapidly growing larger than formal schooling for the peoples of the industrial world. In the United States, more students are now registered in "continuing" or "recurring" postsecondary education than in the regular programs of colleges and universities. Spurred by the success of the G. I. Bill, under which veterans of military service received government aid to go back to school, there is now talk in the United States of a universal entitlement to postsecondary education, to be available at any time during a person's lifetime. A similar entitlement has already been built into union contracts in some European countries and is inherent in the relationship of many Japanese workers to their chosen corporate employers.

Torsten Husen, a Swedish scholar of education systems, recommends a "drawing right" for all students, to reduce formal and increasingly expensive full-time schooling and to encourage more frequent exposure to recurrent education. The consequence would be a major expansion in continuing education—in high schools and colleges if they can handle it or in new institutions if they cannot.

Similar trends are to be seen, under very different political and economic conditions, in the less developed countries. There, too, formal schooling is also likely to become a dwindling part of the educational process as literacy training, skills training, language training, computer training and other functional types of education are spread to adults where they live and work. The World Bank, once again leading the way, is placing major bets on "nonformal education" as a less expensive and more effective road to functional literacy for the poorest of the poor.

Worthwhile Work

The industrial democracies share two problems: their incapacity to put everyone to work who wants to work, and a rising dissatisfaction with the work to be done. The United States has for several years declared, in effect, that one-fourteenth of its work force is surplus to its national requirements—including perhaps one-fifth of young workers and two-fifths of young blacks. And a recent poll by the University of Michigan reports that 25 percent of a sample of industrial workers said they did not like their work.

In the United States, employers and employee organizations have both dropped the ball—and bounced it to the government. Organized labor, by and large, is divided into jurisdictions that inhibit retraining for new and different kinds of work, which would remove workers as dues-paying members in their present jurisdictions. Business is not solving unemployment either; its success is measured by profit, not patronage. So the government is left with the problem of reconciling full employment and the fight against inflation. Fear of inflation for the employed majority generally wins out over the fear of unhappiness and disruptive acts by the unemployed minority, and about seven percent of the work force is thus declared surplus by public inaction. The true proportion of unemployed may indeed be much larger. When new jobs become available, many people (especially women) not registered as looking for work turn up in the labor force; that seems to be why the number of jobs can rise impressively while the number of officially jobless remains about the same.

In the longer run, the demographic trend is likely to be helpful. A staff study done for the Joint Economic Committee of the U. S. Congress and published in January 1978 predicts a 50 percent decline in the rate of growth of the U. S. labor force later in this century. The work force will contain fewer teenagers and young adults, and thus a larger proportion of more experienced workers. This should be good for average productivity, especially if people get in the habit of retraining themselves for new tasks or even whole new careers. To reinforce these trends, the Committee staff proposes that public policy should promote "flextime" (more flexible work schedules) and a general entitlement to educational sabbaticals. If one out of every two employed persons took off one year in seven, the job opportunities thus opened up would almost exactly match the number of Americans who were looking for jobs in the early winter of 1977. (But the education and training of the job seekers would still be the key to putting them to work.)

It will not be good enough, in the new moral climate, even to create full employment at uninteresting work. Jobs can be not only income-producing but life-enriching. Jobs are part of equality for minorities, and for women; special support structures (day care centers are not a widespread enough example) will have to be built into every community as more wives work and more households are headed by working women.

Above all, jobs will have to provide most of the answer to that puzzling new question, "After affluence, what?" Already in a few nations, the combination of universal education, economic opportunity and guaranteed incomes is producing the first generation in which a majority of young people know they will be able to make a decent living and are able to look beyond material rewards for fulfillment, adventure and meaning in their lives. The achievement of leisure—on long weekends or after retirement—is no longer, for these new majorities, a valid reason for a life of hard but boring labor. Economic security becomes the launching pad for adventure. And people in "advanced" societies will have to find adventure mostly in their working time.

The Measurement of Quality

The effect of putting aside the old view of growth is to liberate mind and spirit from cost-benefit analysis as the controlling criterion for public policy, from the "bottom line" as the overriding measure of entrepreneurial success, and generally from a primarily economic view of the needs and wants of mankind.

The evidence of this shift in values is accumulating fast. The search is on, for example, for new ways to express personal and organizational objectives, and new ways to measure "progress" toward them, in terms that place human beings (rather than averages or institutions) in the center of the picture. This is the meaning of the shift away from GNP toward more complex "social indicators" and "quality of life" yardsticks, away from average per capita consumption toward individual and group entitlements, away from measuring the health of the health delivery system toward measures of the health of people, away from educational standards expressed in years of schooling toward standards of relevant educational accomplishment.

The prestige of quantitative measures is so high that the early efforts to build quality-of-life indices still seek respectability by counting what can be counted—and leaving out what cannot. A

Physical Quality of Life Index (PQLI) constructed by the Overseas Development Council combines three quantitative indices—infant mortality, life expectancy and literacy—in an unweighted average for whole nations. It has been widely acclaimed as a bold effort to break loose from GNP-itis. It is certainly more useful than measuring money equivalents. But it is still essentially a quantitative measure and suffers, as does GNP, from averaging several different elements which cannot be sensibly weighted the same for all people in all situations.

Humangrowth, which mixes nature's complexities with man's even more complex purposes, cannot be fairly represented by any single index, no matter how elegant. Much more revealing are the quantitative presentations of "quality of life" contained in the successive editions of ODC's own *Agenda for Action,* and in the 1977 McHale report on Basic Human Needs; they are revealing because they deal in indicators by the dozen. The McHales, for example, used 71 indicators, of which 26 are related to education. Even then, some elements of the quality of life are missing—security of the person, for one. But a much richer texture emerges when many indices are used.

The quality of life is not the quantities of livelihood. It is, rather, a feeling about how all the available quantities interact with the individual psyche in a social setting, to make for good or bad vibes, happiness or gloom, lowered or raised expectations, high or low morale. Morale can be judged, for individuals or even groups, at a moment in time; but much of the judgment has to be subjective and impressionistic, better conveyed in interviews than multiple-choice testing, in words than in numbers. You can measure a Renoir painting, but all you have then is the measurements of a Renoir painting. "Quality," said a Canadian critic of the PQLI, "does not fit easily into columns of numbers."

What *can* be measured is the public choice of standards. A Harris poll in 1975 revealed a three-to-one majority endorsement of this statement: "The trouble with most leaders is that they don't understand people want better quality of almost everything they have rather than more quantity."

* * *

We can now come closer to seeing the transition we are in. We are moving toward a scientifically responsible, ecologically-aware,

information-rich, option-maximizing, pluralistic society, whose citizens work as a matter of right and gain—also as a matter of right—lifelong learning in a global and future-oriented perspective. Such a society is bound to move away from "growth" defined as quantitative product irrespective of what and whom it is for. Such a society is bound to consider basic human needs a first charge on available resources. Such a society is bound to bestow its highest priority on the development of human resources—on enhancement of the human environment.

If the provision of basic ("first-floor") needs is represented by a narrow cylinder, the choices on the second floor would spread out like flowers from the top of a vase.

The range of choice cannot be unlimited, even for the most affluent. It is constrained in practice by the obligation of each member of a society to ask if his choices will damage others: that is, whether his choices protect the priority of those on the "first floor" whose basic needs are not yet met; and whether choices on the "second floor" are quality conscious, resource conserving, ecologically prudent and socially fair. It is all too complex for anyone to be in general charge. So each of us is partly responsible for the general outcome. To the extent that each of us thinks about everyone else before acting ourselves, we do not need surrogates or potentates or national police to be mindful on our behalf. But since we are not all so mindful, governments are instituted among men, some more than others deriving their just powers from the consent of the governed. The centerpiece of the crisis of modernization is the apparent incapacity of the institutions of government—whether based on consent or not—to deal with the complexities of choice by the governed.

5.
THE GOVERNANCE OF HUMANGROWTH

The task ahead is to manage a worldwide transition from indiscriminate economic growth to selective growth. It will enhance the human environment within perceived energy and resource constraints, minimize the damaging side effects of development and guide the growth of the presently richer societies to allow "growth with redistribution" in the poorer societies. This task has to be undertaken in a world where no one race or creed or nation or alliance can (or should) arrogate to itself the function of general management: a pluralistic world society.

A tidal change of values is already well under way; some of its surface manifestations have been suggested in the previous pages. The main obstacle to converting these new values into policies and institutions is not limits to physical resources or limits to the human intelligence. It is the limits to government.

In one sense, the limits to government have been the central issue in political theory, social struggles and countless wars for millenia. But the issue was usually objection to governing authorities that were viewed as having too much control over people and events. The condition we now face is very different: the apparent incapacity of existing political institutions, whatever their ideological color, to manage unprecedented complexity.

* * *

It is not too much to say that just about every national government on earth is beyond its depth and in serious trouble. This is true of the industrial democracies, baffled by inflation, unemployment, pollution, insecurity and youthful crime. It is true of the Soviet system, unable to feed its people and afraid to let them

escape. It is true of the "China model," whose new leaders now speak openly about "ten lost years" of Cultural Revolution and political infighting. It is true in most developing nations, unable to meet basic human needs or avoid the worst mistakes of the early Industrial Revolution. And it is true of the international organizations in which governments form committees to blame each other for their impotence, while international staffs try to work on world problems that governments try to ignore.

Political leaders keep up a brave front, but their incapacity for decision-making becomes more and more visible. Central economic planning, popularized around the world partly by industrial democracies that do not practice it themselves, is nearly everywhere in disarray. Transnational companies, weathering the assaults of some sovereignties but welcomed by others, have adapted their outlook, policies and practices to life in an interdependent world far better than governments have. A "new proletariat" streams across international frontiers in enormous numbers. Ethnic and religious rivalries and subnational separatists threaten the integrity of long-established nations—South Africa, Nigeria, Ethiopia, Jordan, Lebanon, the United Kingdom and Canada are only the most current examples. Power is leaking out of national governments in three directions—to local communities seeking more discretion over their own destinies; to non-government enterprise (profit and non-profit), which can do so many things faster and more flexibly than governments can, and to international operating agencies attempting somehow to manage new technologies that transcend national jurisdiction.

Part of the trouble is that the traditional institutions of national sovereignty are badly designed for the kinds of problems they now face. They tend to be bounded by the artificial frontiers that survive from the history of rational thought (physics, biology, economics, anthropology), from the history of government activity in simpler times (mining, merchant marine, forestry, the regulation of commerce), and from the historic professions (law, medicine, engineering)—while the real world agenda consists mostly of interdisciplinary, interdepartmental and interprofessional problems.

Government agencies are mostly still not organized to handle the problems that "cut across" disciplines, specialties and bureaucracies, to heighten awareness of the interconnectedness of things, and to encourage integrative training, staff work and decision making. Instead, every government is basically a collection of vertical ministries, in which recommendations travel "up" and orders travel

"down." But everyone (including the inhabitants of these paper pyramids) knows that complex decisions that work are mostly the product of lateral negotiation—what we call committee work and the Japanese call consensus and the Communists call collective leadership.

The institutions of government, in sum, are left over from the era for which they were designed—the era of undifferentiated growth in which the many different kinds of growth did not have to relate to each other. But now they do.

A striking example of the resulting discontinuities is on exhibit in the U. S. effort to get hold of its energy problem.

Before 1973 no part of the U. S. Government (and no international organization, either) was responsible for worrying about energy. The responsibility for "oil" and "gas" and "coal" were all scattered around as parts of an unstudied subject called "energy," which includes sunshine, cloud formations, ocean movements, industrial technology, trade, monetary stability, home insulation, housing patterns, transportation, the mobility of populations and much more. We obscured the fact that, in the end, the realm of "energy" is politics and the reach of "energy" is global.

Before 1973 everyone knew what the "policy" was: to help make abundant supplies of energy available at the cheapest prices to expand economic growth (for any purpose) and raise the productivity of labor. For this, the institutional arrangements were entirely adequate. But they were hopelessly unequipped to deal with, or even to think clearly about, the crisis that emerged after 1973. From this crisis dawned a consciousness that energy was now going to be expensive, that very large international flows of investment capital would be thereby reversed, that the U.S. and its allies were dangerously dependent on Arab oil, that oil might be a dwindling asset in a generation, that exploiting coal and nuclear fission as the main short-term alternatives to oil raised scary environmental and security problems, that we were wasting energy and not developing fast enough the longer-term alternatives we would all too soon require. We suddenly realized that we could not solve any of these puzzles without a wholly new dimension in worldwide cooperation, including the invention, from scratch, of new international institutions.

* * *

The trend toward internationalization of what used to be considered national decision-making already is far advanced. Three categories of problems can be identified which no longer fit into mainly national policy frameworks:

First, there are the *inherently global environments,* where the issues that arise are unmanageable except in a global context. The now familiar examples are weather reporting, forecasting and large-scale modification; traffic through, and pollution of, the atmosphere and the oceans; the protection of the ozone layer; the managment of ocean resources, and the human uses of outer space.

The case for global cooperation about the world's weather is especially strong, and has produced one of the planetary bargains that works. The weather is inherently transnational. Part of every nation's weather comes—some of it modified by accident or on purpose—from outside its political frontiers. Ours comes partly from Canada and Mexico, Japan's from China, the Soviet Union's from Europe, and so on around the globe. All of us are affected by weather systems that travel over the oceans beyond our territorial limits. Atmospheric pressure, carbon dioxide, radioactive fallout, heat and energy swirl in systems so enormous they dwarf even the largest continental nations. Here the technological imperative is so strong that a World Weather Watch is already in place (by action of the U.N. General Assembly and the World Meteorological Organization); a Global Atmospheric Research Program (GARP) has been productive without being politicized, and a first international cloud-seeding experiment will soon get under way as a WMO enterprise.

In an exception that proves the rule, the United States decided some years ago to try to moderate hurricanes. Project Stormfury is now stalled because it was *not* launched as an international project, yet depended for its success on cooperation from countries (Mexico, Japan, China, the Philippines) which were not asked to join as partners but to accept the possible consequences of U.S. interventions in their atmospheric environments—when no one could responsibly predict what the consequences of such U.S. interventions would be.

The fate of efforts to internationalize other globe-girdling technologies is mixed. The nations have been able to agree to the non-arming of unarmed environments—Antarctica, the deep seabed, outer space. The superpowers did choke off anti-ballistic missile systems by treaty before those systems worked well enough to achieve a life of their own. The Law of the Sea Conference has dragged on for

several years, but the impulse to assert and extend national jurisdiction has eroded the starting idea that the oceans are the "common heritage of mankind" and degraded the prospects of allocating income from seabed resources to purposeful growth in the developing nations. A workable communications satellite system carries a growing proportion of messages and pictures around the world. Other opportunities for practical global cooperation may soon present themselves—the remote-sensing technologies (LANDSAT 1 and 2 and their soon-to-be-operational successors), weather modification (there is already a treaty banning any major tampering with weather for military purposes), and farther-out space applications such as solar power generators beaming energy to distribution stations on earth.

* * *

Second, there are issues of *global concern* because they involve the integrity of crucial physical resources and systems shared by the human race: soils and fresh water systems; the basic ecological systems that make fisheries, forests, croplands and pasturelands possible; and such global natural cycles and budgets as heat, water and energy.

In a third category are issues of *global interest* because the impact of what happens in one area reverberates in all. Examples are the policies of governments on population control, the condition of natural and man-made habitats, national decisions that affect such irreplaceable supports of individual and social life as food and energy supplies, the violation of what have come to be regarded as universal human rights, and the prevalence of human poverty, which is to say the failure to meet what have come to be regarded as entitlements to basic human needs.

The 1970s have been notable for the speed and frequency with which previously "domestic" problems have been recognized as global because their persistence poses rising dangers for all peoples and because "domestic" decisions may be technically feasible only within internationally agreed analyses, strategies and guidelines.

The series of world conferences, beginning in 1972, on such "cut-across" categories as the human environment, population, food, the status of women, habitat, employment, water and deserts (to be followed by a Year of the Child in 1979 and a U.N. Conference on Science and Technology for Development the same year), are part of

the transition to a concept of growth in the service of human needs and wants. These "town meetings of the world" should not be judged solely by the "action programs" they adopt just before the delegates have to leave for the airport—much less by the loose rhetoric of plenary meetings. They are best seen as problem-oriented sensitivity training on issues that have been neglected by national governments and international agencies precisely because they raised such questions as the *purposes* of production, the *quality* of life and the *values* to be served by growth.

There is a certain irony in the fact that national criticism of the bureaucratic sins of U.N. agencies—which are many and fully exposed—is at its height just when the U.N. system is breaking this new ground and pushing national governments to look for the first time at the right subjects for the transition we are in.

The energy imbroglio is again an apt illustration of the growing list of "national" policies that can only be sensibly made after considering what other nations may do—and even consulting, early and often, with them.

The international monetary system is not yet either international or a system. The chronically neurotic state of the world's money markets is produced by national governments making decisions that skew the growth policies of their world neighbors. Most of those neighbors, since they are not consulted, have to try to outguess the big generators of money—the United States, West Germany, Japan and a very few others.

International markets—for money, for raw materials, for services, for manufactures—are none of them "free." All of them are in some degree managed, usually for the benefit of those who got there first, invented the most advanced technology, or produce the most of whatever is marketed. The "North-South dialogue" (it is not yet a negotiation) about a New International Economic Order does not—so far, at least—contrast the "market system" with some radical new concept for distributing the benefits of world production of commerce. Indeed, the striking thing about the debate is how little new international economic theory it has produced in its first decade of palaver. The tacitly agreed major premise is that a market system will continue to prevail, and will continue to be rigged; by whom, in whose interest, for whose benefit, are the questions at issue.

But, as a result, the requirements side of the growth equation is beginning to come into its own. In the era of undifferentiated growth,

decisions about price and supply were made by those who produced and processed what was to be priced and supplied—even if they produced it in someone else's country. As the world's political economy now begins to reorganize around such concepts as basic human needs and selective purposeful growth, a sort of international consumerism makes itself felt. On oil the U.S. and its European allies are the leading "consumer advocates;" they claim the right to help set OPEC's prices. It will not be long before—using essentially the same rationale—the major nations that depend on U.S. food exports will discover a similar right to sit at the table where decisions are made about U.S. farm price supports and acreage quotas. A central theme of international politics becomes the re-rigging of international markets and the restructuring of international organizations to serve the emerging ethic of humangrowth by cutting in the consumers on the decisions.

* * *

The upwelling of interest in global problems, technologies, concerns and interests does not mean that government, having fallen down on the job at the national level, must now be reborn at the world level. Global problems do not necessarily, or even usually, require action by everyone all at once under supranational guidance. Local self-reliance and national independence are quite compatible with international arrangements to identify, analyze, monitor and spread the word about global threats to humangrowth and opportunities for cooperation in enhancing the human environment—and also to develop guidelines for national action, make rules and enforce them by national sanctions.

National governments will still be the basic building blocks of world order, but they will increasingly find themselves exercising their sovereign right to collaborate in getting things done that simply cannot be done by translating "independence" as "isolation." When Mediterranean pollution became bad enough, the nations around its shores put aside their ancient quarrels long enough to work out a convention to control oil spills in what used to be the bluest of all seas.

* * *

It seems to be in the nature of human institutions to think hard, plan ahead and act affirmatively only when all other options have been exhausted. Political leaders act effectively when they believe their constituents are fairly ready for action—while the people are

often waiting for acts of leadership to define their collective sense of direction.

The usual halting, paralytic gait of goverment is not a disease for which a patent remedy is handy. But in any serious effort to adapt the institutions of governance (including both the "responsible" and the nongovernmental) to the intellectual and moral requirements of humangrowth, five areas can be identified for priority attention:

First, we will need to master and use new tools for the analysis of trade-offs among alternative policies and actions. Such tools include the analysis of costs and benefits that go beyond traditional economics, and indeed beyond quantitative analysis, to a more comprehensive reading of net gain or loss to the quality of life. Some of the analytical instruments for this purpose are already at hand.

Second, policymakers in the central institutions of government will need to devote more of their energies to questions of lasting importance rather than the day-to-day flaps that dominate their days. Shoring things up, putting out fires, untying jurisdictional knots drain the energy and imagination of government officials, especially at levels of wider responsibility, while important but longer-term problems go unattended. There is no way to insulate the top leaders of government from the distracting details of the moment's emergency—or, in the case of elected officials, from the things that need to be done to get reelected. But governments—and the international organizations they spawn and supervise—do need to ensure continuous attention to issues of fundamental importance—such as the meeting of basic human needs and the complex, long-term problems of incremental enhancement of the human environment.

Third, the education of decision-makers had better focus on the need for more conscious experimentation. Those responsible for policy choices must come to look on themselves, and be looked upon, as designers of experiments which may or may not work out in practice, which are observed as objectively as possible for what is to be learned from them, and which are openly adjusted, or even terminated, when they do not serve the human purpose for which they were intended. Scientists are accustomed to this mode of thinking: No experiment is useless, because negative results add to the store of knowledge about what isn't so or what doesn't work—and knowing what isn't so and what doesn't work is the beginning of wisdom.

For policymakers mistakes are harder to correct. The experiment has to be conducted in public and cannot be precisely replicated. The "knowledge explosion" and the revolution in data-processing do not relieve the pall of ignorance that hangs over so many crucial questions in human affairs. Governments must often act before most of the relevant facts are known, choosing among paths, all of which lie in degrees of darkness and conceal unknowable obstacles. The antidote is not to wait until all the facts are in (they never are), but to engage in continuous mid-course correction. The notion that a government decision, once taken, must be defended as the "right" choice is dangerous—to the public's mental health and to the policymaker's tenure in office—and sooner or later turns out to be untenable. Illustrations abound in the recent political history of the United States.

Fourth, those with responsibility for action need continuous access to the best thinking of those who are not. And those who are privileged to think freely because they are not burdened with responsiblity must inform their thinking. Both are part of "governance."

The reactive mode of modern government creates a vacuum which has to be filled with ideas that originate outside government. An interesting division of labor results, between nongovernmental experts, thinkers and advocates on the one hand, and government officials and legislators on the other. Because they are not "responsible," nongovernmental people are better able than government people:

- to work, ahead of time, on problems that are important but not yet urgent enough to command political attention;
- to shake loose from conceptual confines and mix up disciplinary methodologies;
- to think hard, write adventurously and speak freely about alternative futures and what they imply for public policy today;
- to generate discussion among people in contending groups, different professional fields and separate sectors of society who might otherwise not be talking with each other;
- to organize "dialogue" across national frontiers on issues not yet ripe for more official "negotiation."

The time therefore seems overripe for more active exploration of how the institutional and human resources of the nongovernmental world can be brought into closer and more informal working partnerships with the managers of national and international organizations. Without compromising the ultimate requirement for government to govern, without restricting non-official surveillance and criticism of what government does or fails to do, easier and more continuous relationships need to bridge the too-sharp distinction between "us" and "them."

We do not suggest that nongovernmental organizations are universally or even usually effective in filling the vacuums created by the rigidities of responsibility. But the opportunity is there, and is reflected in the rapid growth of nongovernment enterprise working under such rubrics as policy analysis, futures research, world order studies, humanistic studies, arms control research, environmental action, public interest law, energy conservation, technology assessment and the like. There is even a rough and ready test of their relevance: Is the nongovernmental organization working on issues that are still too vague, too big, too interdisciplinary or too futuristic for governments that are too busy, too crisis-ridden and too politically careful to tackle?

Fifth, those who advise or teach or criticize or make decisions will have to learn to think and act in global perspective. A participating citizen of an interdependent society—in the government or outside—does not have to favor all the forms of interdependence which his nation's power, or weakness, entails. But such a citizen has to understand the international interconnections, whether he or she is going to live with them, intensify them or try to reduce them. A leader in such a society, in or out of government, especially has to learn to think synoptically.

* * *

Growth policy is as good a subject as any on which each of us can test our capacity for thinking in global perspective. The era of indiscriminate growth is on its way out—worldwide. The flirtation with no-growth is cooling off—worldwide. The search for successors to "growth," the attempt of each people to define the new purposes of growth for their time and place, the groping for systems of governance that meet human needs and enhance the human environment—these puzzlements span the globe, yet have to be thought through by individual human beings.

"Reorganization" may sometimes be helpful, but the limits to government are mostly not a matter of how things are organized. They are more a function of how well the participants in the process of planning and getting things done (whether in international, national or nongovernmental organizations) understand the process of which they are a part. That is why lifelong education is, and will increasingly be, so important for the men and women who bring people together in organizations to make something different happen.

How much of that education is gained on the hoof, and how much from recurrently "going back to school," is a matter of taste, aptitude and opportunity—and a question of how swiftly each nation's educational systems are able to adapt to this new and different market for learning. In the era of humangrowth, schools and colleges and midcareer training programs will lose their relevance and their support if they are not producing people who are skilled in analyzing choices and alternatives, inclined to keep their eyes on the longer term, comfortable in the experimental mode, able to bridge (from either side) the gulf between government organizations and organized citizens, and accustomed to viewing each issue in global perspective.

The effective governance of prudent and purposeful growth, to meet basic human needs and maximize human options, is a long way from where we are. The first step on that long journey is to prepare ourselves for the trip.

Notes

We have collected here some parenthetical comments and useful references, without using footnotes that might detract from the narrative. These notes give, chapter by chapter, the source of other people's ideas and a few points of fuller explanation.

Flyleaf

The Camus quote is taken from a speech "L'artiste et son temps" given to the Associazione Culturale Italiana at the beginning of its 1954-55 season.

Chapter 1. The Trouble with Growth

The schema of "certain felt needs in common" is a combination of that proposed to the Aspen Seminar by Chancellor Alexander Heard of Vanderbilt University, and the categories of needs suggested in Harlan Cleveland, *The Future Executive* (New York: Harper & Row, 1972), pp. 126-7; as modified by discussion in the seminar. Note that, although obviously influenced by Abraham Maslow's famous hierarchy of needs and values, our categories are presented not as a linear progression but as universals shared in different degrees by all human beings.

In "The Ambiguities of GNP" (*The Christian Science Monitor*, July 16, 1976), Charles Yost put the case against using GNP as an all-purpose measure this way: "GNP is a peculiarly undiscriminating indicator. . . . Like Oscar Wilde's definition of a cynic, it knows the price of everything and the value of nothing. It is true to its name—it is gross."

Some parts of this chapter follow the argument in Harlan Cleveland, *The Third Try at World Order* (Palo Alto: Aspen Institute for Humanistic Studies, 1977) p. 6. One useful recent effort to characterize imminent social change is found in a two-part article by Willis W. Harman, "The Coming Transformation," in *The Futurist*, February and April 1977, pp. 5-12 and 106-112.

Chapter 2. The Trouble with No-Growth

The Limits to Growth by Donella Meadows and others (New York: Universe Books, 1972) was prepared for the Club of Rome's

project on the predicament of mankind. It has been translated into 17 languages and within four years sold about three million copies. The additional studies undertaken for the Club of Rome are *Mankind at the Turning Point* by Mihajlo Mesarovic and Eduard Pestel (New York: E. P. Dutton & Co., Inc./Readers Digest Press, 1974) and *Reshaping the International Order* coordinated by Jan Tinbergen (New York: E. P. Dutton & Co., Inc., 1976).

The UN demographic projections will be found in *World Population Prospects, 1970-2000, as assessed in 1973,* Population Division, U.N. Doc. No. ESA/P/WP.53, 10 March 1975. The medium variant projections in millions showed 3,967,005 in 1975, 4,815,621 in 1985 and 5,761,465 in 1995. "... for the first time in the experience of the United Nations estimated population trends had to be revised downwards."

The view of post-industrial society discussed in this chapter is developed in analytical detail in the recent work of John McHale and Magda Cordell McHale of the Center for Integrative Studies, now at the University of Houston. See especially *The Future of the Future* (New York: George Braziller, 1969); *Human Requirements, Supply Levels and Outer Bounds* (Princeton, New Jersey: Aspen Institute for Humanistic Studies, Program in International Affairs, 1975); *The Changing Information Environment* (Boulder, Colorado: Westview Press, 1976); *Basic Human Needs: A Framework for Action,* a Report to the United Nations Environment Programme (New Brunswick, New Jersey: Transaction Books, 1978); and "Meeting Human Needs Within Sustainable Growth," a paper prepared for the Second Alternatives to Growth Conference, Houston, Texas, October 1977.

A good short profile on the Cray computer and its designer can be found in William D. Metz, "Midwest Computer Architect Struggles with the Speed of Light," *Science,* Vol. 199, 27 January 1978.

"Biological sustainability" is discussed in Lester Brown's *Redefining National Security* (Washington: Worldwatch Paper 14, Worldwatch Institute, October 1977) and is an underlying thesis of his latest book, *The Twenty-Ninth Day: Accommodating Human Needs and Numbers to the Earth's Resources* (New York: W. W. Norton, 1978). The bestselling attempt to reinterpret growth economics "as if people mattered" was the late E. F. Schumacher's *Small is Beautiful* (New York: Harper & Row, 1973).

Chapter 3. Transition South: Toward Basic Needs

The seemingly intractable problem of the growing numbers of poor in the world is discussed at greater length in *The Third Try at World Order, op. cit.*, pp. 49-54 and also in Harlan Cleveland, "Introduction: Toward an International Poverty Line," in *Basic Human Needs: A Framework for Action, op. cit.* For a concentrated short course in poverty and development see Robert S. McNamara's annual *Address to the Board of Governors of the World Bank Group,* Manila, Philippines, October 4, 1976 and Washington, D.C., September 26, 1977.

Some common assumptions about man's effect on nature in the East and in the pagan and Christian West are examined in Yi Fu Tuan, "Our Treatment of the Environment in Ideal and Actuality," *American Scientist,* Vol. 58, No. 3, May/June 1970, pp. 244-249.

The Cocoyoc Declaration was adopted by the participants in the UNEP/UNCTAD symposium on "Patterns of Resource Use, Environment and Development Strategies" held at Cocoyoc, Mexico from October 8-12, 1974. It is available as U.N. Doc. No. A/C.2/292. "The Houston Declaration" is a consensus statement by the International Conference on Human Needs held at the University of Houston (cosponsored by the Aspen Institute for Humanistic Studies), June 9, 1977. Participants came from Argentina, Barbados, Canada, Hungary, Iran, Italy, Mexico, Morocco, the Netherlands and the United States and from the World Bank, ILO, OECD, UNEP and the United Nations. A report of this Conference, including the Houston Declaration, is available from the Center for Integrative Studies, University of Houston, Houston, Texas 77004.

Earlier fads and fashions in development assistance are chronicled in Harlan Cleveland, *The Obligations of Power* (New York: Harper & Row, 1966), pp. 104-113. The World Bank comments are taken from "Basic Needs: An Issues Paper" (Washington: World Bank, Policy Planning and Program Review Department, March 21, 1977).

Much of the groundwork on the emerging basic needs strategy was laid in documents prepared by the International Labour Office. An understanding of the evolution of this approach can be derived from several key ILO publications including *Employment, Growth and Basic Needs: A One World Problem* (New York: Praeger Publishers, 1977), the report of the Director General for the June 1976 World Employment Conference (published in the U.S. by the

Overseas Development Council in cooperation with the ILO); the conclusions of that conference, *Meeting Basic Needs: Strategies for Eradicating Mass Poverty and Unemployment* (Geneva: International Labour Office, 1977); and Hans Singer, *Technologies for Basic Needs* (Geneva: International Labour Office, 1977).

Chapter 4. Transition North: Toward Human Choice

The distinction between "first-floor" and "second-floor" human needs is developed in *The Planetary Bargain: Proposals for a New International Economic Order to Meet Human Needs* (Princeton, New Jersey: Aspen Institute for Humanistic Studies, Program in International Affairs, 1975).

The historical and cultural credentials of the conservation ethic in the Western world can even be traced to its Judeo-Christian origins. Ironically, this tradition has often been cast as the devil in the environmental morality play, sometimes by reference to that passage in Genesis which exhorts the human race to be "fruitful and multiply." But the same Genesis tells us that Adam and Eve were placed in the Garden of Eden "to dress it and to keep it." In mid-1977 the Interreligious Coalition on Energy, established to support President Carter's appeal for energy conservation, was complaining about "how far American institutions (including the church and the synagogue) have strayed from the Judeo-Christian tradition of stewardship." In the United States, "the origins of organized environmental politics . . . go back at least as far as the period just after the Civil War, but isolated events, foreshadowing later environmental concerns, go back much further." J. Clarence Davies III, "The Greening of American Politics," *The Wilson Quarterly*, Vol. I, No. 4, Summer 1977, p. 85.

An early description of the shifting ethic of ecology is contained in Thomas W. Wilson, Jr., *The Environment: Too Small a View* (Palo Alto: Aspen Institute for Humanistic Studies, 1970).

Daniel Bell's concise distinctions of the stages of industrial development can be found in *The Management of Information and Knowledge*, a compilation of papers prepared for the eleventh meeting of the Panel on Science and Technology, U.S. House of Representatives, Committee on Science and Astronautics, 1970, p 14.

The unique properties of information as a resource are discussed in *The Changing Information Environment, op. cit.; Basic Human*

Needs: A Framework for Action, op. cit., P. 183; and *Human Requirements, Supply Levels and Outer Bounds, op. cit.*, p. 64.

Ways in which new technologies can assist "everyman" in grasping complexity are discussed in *The Future Executive, op. cit.*, pp. 27-28 and 127-134.

A useful guide on how to think of curricula, in elementary and secondary schools, in global perspective is David C. King, Margaret S. Branson and Larry E. Condon, "Education for a World in Change: A Working Handbook for Global Perspectives," *Intercom*, No. 84/85, November 1976. The comments on "continuing education" and recurrent education draw on presentations made to the 1977 Aspen Institute workshop on Growth, Values and the Quality of Life by Harry Woolf, Director of the Institute for Advanced Study, Princeton, New Jersey, and Torsten Husen of the Institute for the Study of International Problems in Education at the University of Stockholm. Some of the studies of nonformal education antecedent to the World Bank policy on educational development were done by Philip Coombs and his colleagues of the International Council for Educational Development with support from the World Bank and UNICEF. See especially *Attacking Rural Poverty: How Nonformal Education Can Help* (Baltimore: Johns Hopkins University Press, 1974) and *Education for Rural Development: Case Studies for Planners* (New York: Praeger Publishers, Inc., 1975).

The suggestion that the true extent of unemployment may be much higher than the official statistics show was spelled out in a November 1977 presentation by Daniel Yankelovich to an Aspen Institute seminar in New York City on "Financing the Future."

Many of the facts and ideas in the section on "worthwhile work" draw on a presentation made to the Aspen Institute workshop by Robert D. Hamrin of the project staff on "U.S. Economic Growth from 1976 to 1986: Prospects, Problems and Patterns" of the Joint Economic Committee of the U.S. Congress. The 41 research papers prepared for the study have been published in a 12-volume study of the same name; a final staff study—*U.S. Long Term Economic Growth Prospects: Entering a New Era* (Washington: U.S. Government Printing Office, 1978)—has just been published.

Some thoughts on "After Affluence, What?" will be found in an article of that title by Harlan Cleveland in *The Futurist*, Vol. XI, No. 5, October 1977, pp. 279-283.

For the presentation of the Physical Quality of Life Index, and also a broader presentation of social indicators for developing countries, see John Sewell, *et al, The United States and World Development: Agenda 1977* (New York: Praeger Publishers for the Overseas Development Council, 1977), pp. 147-154. See also *Basic Human Needs: A Framework for Action, op. cit.;* "The ODC's Physical Quality of Life Index," memorandum dated December 23, 1976, from the Social Science Research Council; and A. Peter Ruderman, "What does the PQLI Really Measure?" *International Development Review*, 1977/1, p.38.

Chapter 5. The Governance of Humangrowth

Management of some "inherently global environments" is lucidly discussed in Seyom Brown, Nina Cornell, Larry Fabian and Edith Brown Weiss, *New Regimes for the Ocean, Outer Space and Weather* (Washington: Brookings Institution, October 1977.)

Further material on weather modification and U.S. planning for future research in this area will be found in a discussion paper by the Weather Modification Advisory Board titled "A U.S. Policy to Enhance the Atmospheric Environment" available from the Board at P.O. Box 2820, Princeton, New Jersey 08540. The Advisory Board will submit a final report to the Secretary of Commerce by mid-1978. A recent analysis of the international implications of remote-sensing technologies will be found in *Resource Sensing from Space* (Washington: National Academy of Sciences/National Research Council, 1977).

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